

DEPARTMENT OF THE ARMY
Corps of Engineers, Northwestern Division
P.O. Box 2870
Portland, Oregon 97208-2870

CENWD-MR-SO
Regulation
No. 385-1-1

1 February 2000

Safety
SAFETY AND OCCUPATIONAL HEALTH (SOH) PROGRAM

History. This issue is a new NWDR.

Summary. This regulation is a consolidation of several publications that cover the safety and occupational health program.


1. PURPOSE. This regulation establishes the Northwestern Division (NWD) SOH Program.
2. APPLICABILITY. This regulation applies to the NWD Office and the districts of NWD.
3. REFERENCES. See Appendix A.
4. OBJECTIVES. The broad objectives of this regulation are:
 - a. To integrate SOH into all engineering design, construction, operating, and administrative processes, in other words integrate SOH into everything we do.
 - b. To maintain acceptable SOH standards on all jobs from start to completion.
 - c. To produce a finished product which provides an inherently safe and healthful environment.
 - d. To operate and maintain NWD installations in a safe and healthful manner.
 - e. To minimize fire loss in NWD facilities.

*This regulation supersedes MRD-R 385-1-1, 31 July 1991. Also, this regulation is a consolidation of previously rescinded NPDR 385-1-1, 1 March 1992; NPDR 385-1-2, 25 October 1978, NPDR 385-1-20, 29 August 1978; NPD Supplement 1 to AR 385-40, 4 August 1980; NPDP 385-1-1, 1 April 1968; and NPDP 385-1-20, 1 July 1977.

5. GENERAL APPLICATION.

- a. The details of the NWD SOH Program are stated in the appendices of this regulation.
- b. District Commanders are authorized to supplement this regulation.
- c. All reportable accidents as outlined in AR 385-40 and USACE Supplement 1 thereto, will be reviewed by the Division SOH Office.
- d. An adequate fire prevention and protection program will be maintained at each installation and project and on each item of floating plant.
- e. SOH training will be accomplished as its need is required. SOH indoctrination for all employees will be given by the supervisor at the start of a specific job. The employee is responsible for cooperating in the SOH program, for reporting to his/her supervisor any unsafe condition or practice observed, and for compliance with established job SOH standards.

FOR THE COMMANDER:



CLIFTON P. JACKSON, JR.
Executive Assistant

11 Appendices

- App A - References
- App B - Responsibilities
- App C - Occupational Health Requirements
- App D - Personal Protective Equipment (PPE)
- App E - SOH Management Evaluations
- App F - Division Commander's SOH Award Program
- App G - SOH Award Program for Construction Contractors
- App H - Qualifications and Skills of Motor Vehicle and Equipment Operators
- App I - Diving Operations
- App J - Ergonomics
- App K - Radiation Protection

DISTRIBUTION:

NWD Intranet <http://www.nwp.usace.army.mil/im/r.coe/regs/nwdr.html>

TABLE OF CONTENTS

<u>Appendix/Annex</u>	<u>Title</u>	<u>Page</u>
APPENDIX A	References	A-1
APPENDIX B	Responsibilities	B-1
APPENDIX C	Occupational Health Requirements	C-1
ANNEX A	Definitions	C-A-1
ANNEX B	Medical Surveillance Program	C-B-1
ANNEX C	Standing Operating Procedures (SOPs) for Medical Surveillance Examinations	C-C-1
ANNEX D	Hearing Conservation Program	C-D-1
ANNEX E	Pesticide Protection Program	C-E-1
ANNEX F	Respiratory Protection Program	C-F-1
ANNEX G	Occupational Vision Program	C-G-1
APPENDIX D	Personal Protective Equipment (PPE)	D-1
ANNEX A	Examples of PPE	D-A-1
APPENDIX E	SOH Management Evaluations	E-1
ANNEX A	Criteria for SOH Program Management Evaluation of District	E-A-1
ANNEX B	SOH Management Evaluation Area/Resident Office	E-B-1
ANNEX C	SOH Management Evaluation Construction Project	E-C-1
ANNEX D	SOH Management Evaluation Operating Project	E-D-1
APPENDIX F	Division Commander's SOH Award Program	F-1
APPENDIX G	SOH Award Program for Construction Contractors	G-1
APPENDIX H	Qualifications and Skills of Motor Vehicle and Equipment Operators	H-1
APPENDIX I	Diving Operations	I-1
ANNEX A	Conduct of Diving Operation	
ANNEX B	Description of Duties	
ANNEX C	Dive Plan Package	
ANNEX D	Nitrox Gas Diving	

<u>Appendix/Annex</u>	<u>Title</u>	<u>Page</u>
APPENDIX J	Ergonomics	J-1
APPENDIX K	Radiation Protection	K-1

APPENDIX A
REFERENCES

1. 5 CFR 339, Office of Personnel Management, Medical Qualification Determinations.
2. 10 CFR 0 through 171, U.S. Nuclear Regulatory Commission Regulations.
3. 29 CFR 1910, Department of Labor, Occupational Safety and Health Administration, Occupational Safety and Health Standards.
4. 29 CFR 1926, Department of Labor, Occupational Safety and Health Administration, Safety and Health Regulations for Construction.
5. 29 CFR 1960, Department of Labor, Occupational Safety and Health Administration, Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters.
6. 49 CFR 171 through 199, Department of Transportation, Hazardous Materials Regulations.
7. Executive Order 12196, Occupational Safety and Health Programs for Federal Employees.
8. DoD 6055.5-M, Occupational Health Surveillance Manual.
9. AR 11-9, Army Radiation Safety Protection.
10. AR 11-34, The Army Respiratory Protection Program.
11. AR 15-6, Procedure for Investigating Officers and Boards of Officers.
12. AR 40-3, Medical, Dental and Veterinary Care.
13. AR 40-5, Preventive Medicine.
14. AR 95-1, Flight Regulations.
15. AR 385-10, The Army Safety Program, with USACE Supplement 1.
16. AR 385-16, System Safety Engineering and Management.
17. AR 385-40, Accident Reporting and Records, with USACE Supplement 1.

18. AR 385-55, Prevention of Motor Vehicle Accidents, with USACE Supplement 1.
19. AR 385-95, Army Aviation Accident Prevention.
20. AR 420-90, Fire and Emergency Services.
21. AR 600-55, The Army Driver and Operator Standardization Program.
22. AR 690-800, Insurance and Annuities.
23. DA Pam 40-501, Hearing Conservation Program.
24. ER 95-1-1, Control and Use of Aircraft.
25. ER 385-1-6, Standard Color and Markings for Hard Hats.
26. ER 385-1-31, The Control of Hazardous Energy.
27. ER 385-1-40, Occupational Health Program.
28. ER 385-1-80, Radiological Safety.
29. ER 385-1-85, Safety and Occupational Health Program Management Evaluation.
30. ER 385-1-86, Government Employee Diving Operations.
31. ER 385-1-89, Hearing Conservation Program.
32. ER 385-1-90, Respiratory Protection Program.
33. ER 385-1-91, Training, Testing and Licensing of Boat Operators.
34. ER 385-1-92, Safety and Occupational Health Document Requirements for Hazardous, Toxic and Radioactive Waste (HTRW) and Ordinance and Explosive Waste (OEW) Activities.
35. ER 1130-2-500, Partners and Support (Work Management Policies).
36. ER 1130-2-540, Environmental Stewardship Operations and Maintenance Policies.

37. EM 385-1-1, Safety and Health Requirements Manual.
38. EM 385-1-80, Radiation Protection Manual.
39. EP 385-1-40, Boards of Investigation.
40. EP 385-1-58, Medical Surveillance Handbook.
41. EP 415-1-260, Resident Engineer's Management Guide.
42. TB MED 502, Respiratory Protection Program.
43. TB MED 503, The Army Industrial Hygiene Program.
44. TB MED 506, Occupational Vision.
45. TB MED 523, Control of Hazards to Health from Microwave and Radio Frequency Radiation and Ultrasound.
46. TB MED 524, Control of Hazards to Health from Laser Radiation.
47. Occupational Health Guidelines for Chemical Hazards, National Institute for Occupational Safety and Health (NIOSH) and Occupational Safety and Health Administration (OSHA), DHHS (NIOSH) Publication No. 81-123, January 1981.
48. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, NIOSH, OSHA, U.S. Coast Guard (USCG), and Environmental Protection Agency (EPA), October 1985.
49. USACE Chemical Hygiene Plan, CESO-I memorandum dated 19 July 1991, subject: OSHA Required Chemical Hygiene Plan.
50. NAVSEA 0994-LP-001-9010 and 0920, U.S. NAVY Diving Manuals
51. National Oceanographic and Atmospheric Administration, NOAA Diving Manual, October 1991.

APPENDIX B RESPONSIBILITIES

1. GENERAL RESPONSIBILITIES. The SOH program in the Northwestern Division will be uniformly applied to all activities. This program will be administered by the Division and District Commanders. SOH personnel will conduct periodic surveys of all field activities, coordinate accident prevention throughout the Division, advise, assist, and stimulate uniformity in the prevention of accidents.

2. STAFF RESPONSIBILITIES.

a. Accident prevention will be applied as a management responsibility and will be integrated into all activities. Supervisory personnel are charged with the responsibility of informing subordinates as to the method by which accident prevention is to be applied. Accident prevention will be given consideration equal to other responsibilities of supervision. Specific reference to accident prevention will be made in the performance standards for these individuals.

b. Responsibility for design application of the SOH, radiological safety and fire prevention programs is established in the Engineering and Technical Services Directorate at the division-level and in the Engineering and Construction Division at the district-level.

c. The SOH Offices are established as staff units to assist and advise the Division and District Commanders in executing safety, occupational health, fire prevention, and radiological safety responsibilities.

3. SUPERVISORS AND MANAGERS RESPONSIBILITIES.

a. Each supervisor is responsible for accident prevention in his/her area of supervision. He/she will inform subordinates as to how accident prevention is to be applied and enforced.

b. Accident prevention will be given consideration equal to other responsibilities of supervision. Supervisors will assure that accident prevention will be specifically referred to in the job descriptions of all inspection personnel. Accountability for safety performance will be considered in annual employee performance evaluations.

c. In case of an accident, the supervisor/manager is responsible for obtaining prompt medical attention for an injured employee, on the date of the accident, and seeing that all required forms are completed. If light work duty is recommended by the attending physician, and a job is available, the supervisor will make the work assignment.

d. Government personnel in charge of any phase of contract operations are directly responsible for the enforcement of safety policies and regulations in compliance with EM 385-1-1.

e. Supervisors shall strictly enforce the use of personal protective equipment (PPE).

f. Supervisors will assure that an adequate activity hazard analysis (AHA) is prepared and available for all tasks that could result in an employee's serious injury, disability or fatality.

4. EMPLOYEES. Each employee will:

a. Observe safe working practices in the performance of their job, as established by EM 385-1-1 and other applicable regulations, and supervisory instructions.

b. Promptly eliminate or report unsafe conditions, practices, or equipment to immediate supervisor or the District Safety Office for abatement. If a supervisor's response to a complaint is inadequate, employee may appeal to higher authority.

c. Report all injuries and accident, no matter how minor, to supervisor immediately after the accident took place.

d. Use and/or wear all uniforms and personal protective equipment appropriate for protection of self and co-workers.

5. SPECIFIC RESPONSIBILITIES – SAFETY AND OCCUPATIONAL HEALTH OFFICES.
The SOH Office will:

a. Lead and manage the SOH Program to include worker safety, occupational health, public safety, radiological safety, military construction safety, civil works operating projects safety, and fire prevention.

b. Ensure that plans and specifications include necessary SOH requirements. Include safety engineering criteria and any other pertinent safety and occupational health requirements for accident and occupational illness prevention purposes.

c. Maintain accident records and exposure statistics as necessary to provide advice regarding accident experience and prevention to Division and District Commanders and their staffs, as well as comply with laws and other pertinent regulations.

- d. Advise the Division and District Commanders regarding requirements of safety, occupational health, fire prevention , radiological safety, military construction and civil works operating projects safety programs.
- e. Conduct SOH surveys, SOH management evaluations and evaluate operations using risk management techniques with regard to safety, occupational health, fire prevention and radiological safety in military construction projects and civil works operating projects.
- f. In coordination with the Civilian Personnel Advisory Center, provide recommendations regarding hazard pay determination.
- g. Provide pertinent SOH training as appropriate.
- h. Review Superfund and Defense Environmental Restoration Program (DERP) designs and inform the Hazardous, Toxic and Radiological Waste (HTRW) Design Center of any apparent errors and/or omissions in project plans and specifications so the appropriate organization can be notified.

6. SPECIFIC SOH RESPONSIBILITIES – DIRECTORATE OF ENGINEERING AND TECHNICAL SERVICES. The Directorate of Engineering and Technical Services will:

- a. Ensure that all plans, specifications and technical publications incorporate appropriate safety and occupational and environmental standards in compliance with EM 385-1-1, and other pertinent codes, laws, and regulations.
- b. Review safety, occupational health, fire prevention and radiological safety procedures in all field surveys and inspections. Include appropriate comments in their reports and route reports detailing unsafe conditions to SOH office.
- c. Coordinate with the SOH Office matters pertaining to safety, occupational health, fire prevention, and radiological safety.
- d. Assist in the preparation and review of corrective actions, including the analysis of cost effectiveness, for occupational safety and health deficiencies.
- e. Ensure an effective accident prevention program is implemented for each hydroelectric power project that includes provisions of ER 385-1-31, The Control of Hazardous Energy.

f. Ensure a continuing public safety program is developed and promoted at each project. These programs will include, but not be limited to, water safety, traffic safety, and other related public use activities occurring on project lands.

g. Ensure the implementation of SOH programs for Corps employees at each area and resident office and operating lake project. Programs will include accident prevention and employee training in SOH to include training required by the OSHA Hazard Communication Standard.

h. Ensure all floating plants are maintained and operated in accordance with the regulations of the U.S. Coast Guard and U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, Section 26, Floating Plant and Marine Work.

i. Ensure all land and floating plants include such SOH devices required to comply with SOH regulations of the states in which the projects are located.

7. SPECIFIC SOH RESPONSIBILITIES – DIRECTORATE OF PROGRAMS MANAGEMENT. The Directorate of Programs Management will:

a. Ensure that all plans, specifications and technical publications incorporate appropriate safety and occupational and environmental standards in compliance with EM 385-1-1, and other pertinent codes, laws, and regulations.

b. Review safety, occupational health, fire prevention and radiological safety procedures in all field surveys and inspections. Include appropriate comments in their reports and route reports detailing unsafe conditions to SOH Office.

c. Coordinate with the SOH Office matters pertaining to safety, occupational health, fire prevention, and radiological safety.

d. Assist in the preparation and review of corrective actions, including the analysis of cost effectiveness, for occupational safety and health deficiencies.

e. Evaluate SOH compliance on all work and activities under their supervision.

8. SPECIFIC SOH RESPONSIBILITIES – CIVILIAN PERSONNEL ADVISORY CENTER (CPAC). The CPAC will:

a. Coordinate and assist the SOH office in the development of safety training and orientation courses.

- b. Assist supervisors in preparing job performance standards involving safety responsibilities.
- c. Ensure that supervisors and employees are aware of their rights and responsibilities under the Office of Workers' Compensation Programs (OWCP). Provide assistance in filing compensation claims and maintain any files necessary to support this function.
- d. Maintain liaison with labor organizations representing federal employees to emphasize safety and improve on specific hazardous operations and conditions.
- e. Make determination regarding hazardous duty pay.

9. SPECIFIC SOH RESPONSIBILITIES – LOGISTICS MANAGEMENT OFFICE. The Logistics Management Office will:

- a. Establish procedures to insure that Logistics personnel are trained and physically qualified for the work to which they are assigned.
- b. Dispose of unsafe materials or rejected safety equipment and inform recipients of potential unsafe or hazardous conditions. When practical, render the materials unusable prior to disposal. All effort will be made to eliminate, wherever possible, such hazardous materials from supply and warehousing channels.

10. SPECIFIC SOH RESPONSIBILITIES – OFFICE OF COUNSEL. The Office of Counsel will:

- a. Assist the SOH Office in legal matters and safeguard accident information and data reports. Requests for any information will be referred through SOH Office to Office of Counsel.
- b. Provide legal advice to the Commander concerning the likelihood of litigation, claims, disciplinary and/or administrative actions developing as a result of any major accident, so that a determination may be made regarding initiation of a collateral investigation to serve as an independent record of the facts regarding the accident.

11. SPECIFIC SOH RESPONSIBILITIES – OTHER ORGANIZATIONS. Other directorates, divisions, branches, and offices will participate in the SOH Program and ensure that needed SOH measures encompass all personnel and activities.

a. Conduct or direct the annual occupational safety and health survey of those areas under their jurisdiction.

b. Establish procedures to insure that their personnel are trained and physically qualified for the work to which they are assigned.

APPENDIX C OCCUPATIONAL HEALTH REQUIREMENTS

1. PURPOSE. This appendix establishes responsibilities and procedures for implementing the occupational health requirements.
2. APPLICABILITY. This appendix is applicable to all civilian employees in the Northwestern Division Office and the districts of the Northwestern Division.
3. REFERENCES. See Appendix A for references that apply to occupational health.
4. GENERAL. This appendix establishes requirements for health hazard evaluations, implementation of exposure control measures and procedures for medical surveillance of employees with potential exposures to chemical, physical and biological agents on the job.
5. RESPONSIBILITIES.
 - a. District Commanders. District Commanders will ensure compliance with these provisions.
 - b. Civilian Personnel Advisory Center will:
 - (1) Ensure necessary pre-employment medical examinations are obtained when filling all vacant positions.
 - (2) Ensure all vacancy announcements and position descriptions clearly identify and list all recognized health hazards of the position, address the requirement for use of protective clothing and equipment when required by the position, and are reviewed/updated annually or as soon as a health hazard is recognized.
 - (3) Ensure that employees' medical records are filed appropriately and maintained in a confidential manner.
 - c. Division and District Safety and Occupational Health Office will:
 - (1) Provide administration, coordination, and technical review on occupational health matters, industrial hygiene and medical surveillance.
 - (2) Coordinate with the District SOH Offices regarding compliance with occupational health requirements.

(3) Coordinate or conduct occupational health program evaluations and industrial hygiene work place surveys to evaluate potential health hazard exposures. Recommend personal protective equipment, administrative, work practice, and engineering controls as appropriate to control exposures of identified health hazards.

(4) Assist supervisors on the selection of industrial hygiene testing equipment and on the training in the operation and maintenance of the equipment.

(5) Provide overall administration and management of the Medical Surveillance Program. See Appendix C, Annex A, Definitions; Annex B, Medical Surveillance Program; and Annex C, Standing Operating Procedures for Medical Surveillance Examinations.

(6) Monitor the total costs for all medical and industrial hygiene services to include Office of Workers' Compensation Programs (OWCP) chargebacks.

(7) Confer with the examining physician when necessary to identify potential causes of occupational injury or illness. Recommend necessary preventive measures be incorporated into operational procedures.

d. District Safety and Occupational Health Offices will:

(1) Coordinate with CENWD-SO regarding personnel or operational changes that may affect the SOH Program.

(2) Provide overall management for the implementation of the Hazard Communication Standard criteria including Hazardous Material Inventory submittals and updates, written hazard communication programs, warning labels, material safety data sheets and employee information and training.

(3) Assist supervisors on the selection, use, and limitations of appropriate personal protective devices and ensure that appropriate training is provided to the users of the equipment.

(4) Assist supervisors in the selection of industrial hygiene testing equipment and on the training in the operation and maintenance of the equipment.

(5) Ensure that Standard Operating Procedures (SOPs) with the applicable activity hazard analysis and regulations are developed as required or determined necessary.

e. Supervisors Including Area Engineers, Resident Engineers, Project Engineers, Project Managers, Chiefs of Divisions and Staff Elements, and Separate Offices will, as appropriate:

(1) Appoint an individual to act as the single point of contact for administration of the Medical Surveillance Program.

(2) Ensure employees meet their scheduled medical examination appointment with the examining physician.

(3) Ensure Standard Form No. 78 (SF 78), United States Civil Service Commission, Certificate of Medical Examination or its substitute accurately describes the functional and environmental factors of the position.

(4) Initiate engineering measures to control employee exposures to hazardous substances and harmful physical agents.

(5) Initiate administrative and work practice controls, enforce the use of required personal protective equipment, ensure that protective equipment is maintained in a serviceable condition, and coordinate with the District SOH Office on the selection, use and limitations of protective equipment and required training for employees.

(6) Ensure health hazards and status of employee's health is considered in the assignment of duties and filling positions.

(7) Annually review the working conditions paragraph in the employee job descriptions and ensure employees are not required to work beyond their physical capabilities. If employee is physically unable to perform the work, initiate an appropriate personnel action request.

(8) Monitor positions and apprise the District SOH Office and CPAC of any special or unusual physical requirements that should be documented in the official position description.

(9) Advise the District SOH Offices whenever new activities, processes, chemicals, or equipment that may produce health hazards are introduced into the working environment.

(10) Ensure work areas are surveyed in accordance with this appendix.

(11) Ensure the Hazardous Material Inventory and the Hazardous Occupational Inventory are kept current and a notice is posted informing employees of their location and their right to review them.

(12) Ensure the Hazardous Material Inventory and the Hazardous Occupational Inventory are kept current and a notice is posted informing employees of their location and their right to review them.

(13) Ensure compliance with the Hazard Communication Standard requirements and all other applicable OSHA standards. This includes having a written program, training program and records, hazardous materials inventory, material safety data sheets and labeling system. Ensure designated employees have been trained in the operation and maintenance of industrial hygiene testing equipment possessed by the field activity.

f. Employees will:

(1) Notify the supervisor of any training desired or required to perform job activities.

(2) Notify the supervisor of any unusual health condition or change in health status that warrants medical evaluation or consideration relative to work assignments.

(3) Use prescribed personal protective devices, follow administrative and work practice controls, and utilize engineering controls. Employees shall promptly report damaged or inoperable personal protective equipment and engineering control equipment to the supervisor.

g. Specific Exposures.

(1) Hearing Conservation. See Appendix C, Occupational Health Requirements, Annex D, Hearing Conservation Program.

(2) Pesticides. See Appendix C, Occupational Health Requirements, Annex E, Pesticide Protection Program, and Annex F, Respiratory Protection Program.

(3) Occupational Vision. See Appendix C, Occupational Health Requirements, Annex G, Occupational Vision Program.

(4) Ionizing Radiation. All personnel potentially exposed to ionizing radiation shall be included in the Personnel Dosimetry Program. A cumulative exposure record DD Form 1141 (Record of Occupational Exposure to Ionizing Radiation) shall be maintained for each individual in the Personnel Dosimetry Program. DD Form 1141 shall be retained in the employee's official medical folder in the CPAC. A person in the Division Office and each District shall be appointed on orders to maintain the personnel dosimetry records.

(5) Other Harmful Chemical, Physical and Biological Agents. These hazards will be addressed on a case-by-case basis.

h. Employee Health Maintenance Medical Examinations. These are voluntary medical examinations conducted by the U.S. Public Health Service, Health Unit, in accordance with an annual quota assigned to each participating agency. Employees are scheduled for these medical examinations based upon such factors as personal desire, position occupied, age, and length of time since last examined. These medical examinations are not a part of the Medical Surveillance Program.

8. ENGINEERING CONTROL MEASURES. Protection against health hazards shall be accomplished by accepted engineering control measures. Administrative and work practice controls shall be used when engineering control measures are not feasible. When effective engineering and/or administrative work practices are not feasible, or while they are being instituted, personal protective equipment shall be provided and used.

ANNEXES:

Annex A – Definitions

Annex B – Medical Surveillance Program

Annex C – Standing Operating Procedures (SOPs) for
Medical Surveillance Examinations

Annex D – Hearing Conservation Program

Annex E – Pesticide Protection Program

Annex F – Respiratory Protection Program

Annex G – Occupational Vision Program

ANNEX A
DEFINITIONS

Audiogram -

A record of the threshold of audibility of each ear at 500, 1000, 2000, 3000, 4000, and 6000 Hertz (Hz).

**Blood Chemistry Screen -
(Sometimes is called a
“SMAC 21.” Sometimes has
26 constituents analyzed
and is called “26-panel.”)**

1. Blood glucose
2. BUN – Blood urea nitrogen
3. Creatinine
4. BUN/Creatinine Ratio
5. Uric acid
6. Sodium
7. Potassium
8. Chloride
9. Calcium
10. Phosphorus
11. Iron, total
12. Total protein to include globulin, albumin,
13. Cholesterol
14. HDL Cholesterol
15. LDL Cholesterol
16. Cholesterol/HDL Cholesterol
17. Triglyceride
18. Total bilirubin
19. Direct bilirubin
20. Indirect bilirubin
21. Alkaline phosphatase
22. LDH – lactic dehydrogenase
23. SGOT-serum glutamic-Oxyaloacetic
transaminase
24. SGPT – serum glutamic-pyruvic
transaminase
25. Albumin
26. Globulin

A/G Ratio

**Blood Lead Level and Zinc
Protoporphyrin Tests -**

Tests to analyze the level of lead in a person's blood.

Chest Roentgenogram (PA) -

14"x17" chest roentgenogram (x-ray) film of a posterior-anterior (PA) projection.

**Cholinesterase Inhibiting
Pesticides**

Insecticides whose main effect is the inhibition of the enzyme cholinesterase in various tissues, resulting in the accumulation of acetylcholine at nerves endings. Increased amounts of acetylcholine results in excessive stimulation of muscle, which causes paralysis of the affected individual.

Clinical Audiological Evaluation

To include pure-tone airs and bones conduction audiometric tests, speech reception thresholds, and speech discrimination tests. Performed to determine whether the shift is permanent and work related, whether the type of hearing protection being used by the employee is adequate, and whether the employee should be allowed to return to work in hazardous noise.

Complete Blood Count (CBC) -

Includes hemoglobin, hematocrit, red cell indices, white cell count with differential.

**Hazardous Material
Inventory (HMI)-**

A listing of chemical, biological, or physical agents present at each work site which by virtue of their physical characteristics, use, or action upon the body, constitutes a health hazard.

**Hazardous Occupational
Inventory (HOI) -**

A computer list, provided by the Occupational Health Coordinator, of employees who are required to take a periodic job-related medical examination under the Occupational Health Program.

Hazardous Substance -

A substance which by reason of being explosive, flammable, toxic, corrosive, irritating, or otherwise harmful, is likely to cause injury, illness, or death.

Impulse Noise -

Noise consisting of short bursts of acoustical energy and is characterized by a rapid rise time of not more than 35 milliseconds (ms) to a peak pressure. Total duration of a single pulse is not more than 500 milliseconds. When the interval between peaks is 1 second or less, the noise source should be considered steady noise.

**Occupational Health
Coordinator -**

The person that manages the Medical Surveillance Program.

Periodic Medical Examination -

Medical examination conducted every 1 to 4 years to ensure that the employee remains physically suitable to perform his/her job, detect early or subclinical effect as a result of over-exposure to toxic chemicals or hazardous substances, and to monitor for unanticipated effects of long-term, low-level exposure to specific biological, chemical, and physical agents.

Physical Agents -

Includes sources of radiant heat, abnormal temperature and humidity, excessive noise, improper or inadequate illumination, ultraviolet radiation, and x and gamma rays.

**Pre-Employment Medical
Examination -**

Medical examination conducted to determine whether a job applicant is physically suitable to perform work requirements and assignments defined in the job description and to provide baseline values for comparison with later values.

Pulmonary Function Test (PFT) -

Includes, as a minimum, the determination of Forced Expiratory Volume in 1 second (FEV₁), Forced Vital Capacity (FVC), and comparison with expected norms for the individual's age and height.

Urinalysis (UA) -

Includes tests for specific gravity, albumin, glucose, ketones, and bilirubin.

ANNEX B
MEDICAL SURVEILLANCE PROGRAM

1. PURPOSE. This annex establishes the Medical Surveillance Program for job related medical examinations of civilian employees.

2. MEDICAL EXAMINATIONS.

a. Job Related Medical Examinations. All workers performing hazardous duties will be listed in the Hazardous Occupational Inventory (HOI) and will be given a periodic medical examination.

b. The medical examination will vary for each employee and will be based on an employee's exposure to hazardous substances and harmful physical agents on the job. Seasonal and temporary employees of the Corps who work in a hazardous environment will be included in the Medical Surveillance Program if warranted by their exposure to hazardous substances or harmful physical agents.

c. Medical examinations will be given every one to four years depending on the extent of exposure. As a result of the medical findings, specific action may have to be taken. Such actions may include modification of the work environment, transfer of an individual worker to another job, detail to another job pending correction of the work environment and the possibility of a medical disability retirement. The person in the Division or District SOH Office that manages the Medical Surveillance Program determines which tests are performed based on the exposures of the individuals and the applicable regulations. The frequency of the examinations is determined by the criteria stated in those regulations. In the case of chest roentgenograms, there is one performed as part of the baseline examination. Thereafter, the examining physician usually determines the frequency of the chest roentgenograms; however, some exposures require chest roentgenograms based on a scheduled bases stated in OSHA regulations or recommended by medical authorities.

d. Rationale for Examinations. There are three primary reasons for performing job related examinations.

(1) To determine a worker's capability to physically and mentally perform a job without undue risk or harm.

(2) To indicate individuals who are hypersensitive to low level concentrations of chemical, biological or physical agents.

(3) To detect early effects resulting from accidental or inadvertent exposure to hazardous agents.

ANNEX C
STANDARD OPERATING PROCEDURES (SOPs)
FOR
MEDICAL SURVEILLANCE EXAMINATIONS

1. These procedures apply to employees who do not utilize military medical facilities. Employees at work sites who receive their medical examinations at military facilities shall contact the person that manages the medical surveillance program for proper procedures.
2. Criteria for Pre-employment Medical Examinations. Job applicants applying for positions that are included in the Occupational Health Program must receive preplacement exams. Pre-employment exams are administered by the CPAC.
3. Criteria for Periodic Medical Examinations.
 - a. Employees serving in positions that are included in the HOI will receive periodic medicals. The HOI is prepared by the person that manages the Medical Surveillance Program based on the potential exposures to harmful chemical, physical and biological agents.
 - b. Employees who transfer to a position having medical examination requirements or if their jobs have new medical examination requirements will receive periodic medical.
 - c. Criteria for Pre-separation Medical Examinations. Employees serving in positions included in the HOI and leaving government service or transferring to another agency. The SOH Office and the employee's supervisor will determine the need for a final medical examination.
4. General Instructions.
 - a. Points of contact (POCs) will update the HOI at the first of each month and notify the appropriate SOH office of any changes. POCs shall notify the SOH office as soon as possible of any employee who will be leaving government service or transferring to another agency.
 - b. The SOH office will send to each POC an updated HOI at least annually.
 - c. The division and district SOH offices will determine procedures for distribution of supplies for packets of necessary forms to each POC and preparation of the packets as needed for the organizations they service. Each packet will consist of:

(1) SF-78, Certificate of Medical Examination or substitute form. Part A of the SF 78 is to be completed by the employee, Part B by the supervisor, and Part C by the examining physician. Functional Requirements - #4A – items #24-31 stipulate vision requirements on the SF 78. Annex G of this appendix should be referenced for vision requirements for motor vehicle operators, incidental operators or operators of hoisting equipment. Item #27 should be circled and the specific vision requirements written in.

(2) The Occupational Health Coordinator will instruct the examining physician regarding what medical tests are authorized for each employee. In most cases, the medical examination is a comprehensive occupational health medical examination; however, some variation in testing occurs based on an employee's potential exposures to harmful chemical, physical and biological agents on the job. The guidelines for the content of the examinations are DoD 6055.5-M, Occupational Health Guidelines for Chemical Hazards, and Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities. The baseline examination includes a chest roentgenogram. After the baseline examination, a chest roentgenogram may be performed at the discretion of the examining physician. If any subsequent tests or examinations are needed, the Occupational Health Coordinator authorizes them in consultation with the examining physician.

(3) Employee's Instructions for the Medical Surveillance Program Exam. Self-explanatory.

(4) Examining Physician's Instructions for the Medical Surveillance Program Exam. Self-explanatory.

d. POCs shall schedule employees for their examinations in advance.

e. Supervisor directs employees to examining physician with forms.

f. Examining physician completes medical examination and forwards all test results and forms to the appropriate safety and occupational health office.

g. The original SF 78, and a copy of any other medical exam results will be sent to the district human resources office to be filed in the employee's medical record file after they have been reviewed by the appropriate SOH office. Individual employees may request the results of their occupational health exam from their human resources office. Medical tests that identify a non-work related problem will be copied and sent to the employee in a sealed envelope by the appropriate SOH office. Individuals whose medical tests identify a potential work-related problem may be referred to a physician for further evaluation, and any job limitations will be

stated. If an employee has any further medical tests completed without authorization from the appropriate SOH office, all costs will be at the employee's expense.

- h. The appropriate SOH office establishes suspense dates for re-examination.
- i. Changes in Procedures. If district SOH offices want to change the procedures, they will submit a written request to CENWD-SO explaining the requested change(s).

ANNEX D
HEARING CONSERVATION PROGRAM

1. PURPOSE. This annex establishes the Hearing Conservation Program.
2. GENERAL. ER 385-1-89 specifies CE requirements concerning the implementation of the hearing conservation program. The prevention of hearing loss from exposure to noise involves the identification and evaluation of noise hazardous areas, posting of noise hazardous areas, engineering control measures, the proper selection and use of hearing protective devices, and baseline, periodic and pre-separation audiometric monitoring of personnel identified as working in noise hazardous areas, supplemented by health education, supervision and discipline of personnel.
3. HAZARDOUS NOISE.
 - a. Steady state noise is considered hazardous when it equals or exceeds 85 dBA.
 - b. Impulse or impact noise is considered hazardous when it exceeds 140 dBP.
4. NOISE SURVEYS (Sound Level Meter Surveys) AND HAZARD EVALUATION.
 - a. Sound level meter surveys shall be performed in all work areas which are suspected to be noise hazardous. DD Form 2214, Noise Survey (Sound Level Meter Survey), shall be used to record the surveys.
 - b. The sound level shall be suspected to be hazardous when two persons with normal hearing, standing two feet apart, cannot converse in normal tones.
 - c. Steady state sound level tests shall be made with a sound level measurement device that meets or exceeds requirements for Type II sound level meters as specified in ANSI Standard S1.4-1983, "Specifications for Sound Level Meters" using the A-weighting network and slow meter response. The average A-weighted sound level is determined by readings taken at the approximate position of the worker's exposed ear. A sound level calibrator shall be used to calibrate the sound level measurement instrument before each use. Noise hazardous areas shall be resurveyed at least once a year, and within 30 days of any change in process, equipment, or personnel assignment which will increase the potential for exposing employees not previously exposed, or will potentially increase exposure to the extent that the personal protection being used may no longer provide sufficient attenuation. Records of the surveys will be kept in the District SOH Offices. These records shall include number, type and location of noise sources; a list of personnel working in the noise hazardous work areas; type, model, serial number and date of most recent factory calibration of the sound level measurement device used in this evaluation, and the dBA levels obtained.

d. The measurement of impulse or impact noise requires the use of special equipment such as an impact noise analyzer. A survey of this type of noise shall be requested from the District SOH Office.

5. NOISE CONTROL.

a. Engineering Controls. Feasible engineering controls shall be used to reduce noise exposure to within permissible limits.

b. Administrative Controls. Administrative controls involve a reduction of the noise exposure time by changing job schedules or rotating personnel to reduce the amount of time spent in noisy areas. The control room at the power plants also reduces the time of noise exposure by allowing employees to monitor the console gauges away from the noise producing area.

c. Personal Protection. There are some operations within the Corps that cannot be quieted by engineering methods. Ear plugs or muffs worn by workers can provide effective protection in such cases. Ear plugs or muffs shall be furnished and their use enforced when noise level exposure equals or exceeds 85 dBA steady state noise or exceeds 140 dBP impulse noise. Both plugs and muffs shall be available and worn for exposures about 108 dBA or 165 dBP. Hearing protector attenuations shall be evaluated during the selection process in order to ensure that noise reaching the ear is less than 85 dBA. Note: Some ear plugs require fitting by a health professional.

6. AUDIOGRAMS.

a. A baseline audiogram must be performed for new hires and transfer employees before they are permitted to start work in noise hazardous areas. Existing employees, for which baseline audiograms are not available, will be given a baseline audiogram, as soon as possible, but within 30 days. After a baseline audiogram is obtained, audiograms are required annually for employees exposed to hazardous noise. Judgments concerning exclusion from audiometric testing will be made only by safety/health personnel.

b. Annual evaluations shall be made by comparing the current versus the baseline audiogram. When a significant threshold shift exists, appropriate action must be taken. Definitions follow:

DOD Shift Definition: 20 dB difference at 1000, 2000, 3000 or 4000 Hz in either ear

(Ref: TB MED 501, para 9b(2)(a)).

OSHA Shift Definition: 10 dB average at 2000, 3000 and 4000 Hz in either ear (Ref: 29 CFR 1910.95(g)(10)).

OWCP Shift Definition: If average at 500, 1000, 2000 and 3000 Hz is greater than 25 dB, then compensable

(Ref: FECA Procedure Manual, Chapter 2, para 16c(2)(a)).

When calculating differences, the sign convention is the following (Ref: TB MED 501, App F, para F-2e(4)):

“+” when current hearing threshold is *worse* than baseline;

“-” when current hearing threshold is *better* than baseline.

c. If an audiogram indicates a significant threshold shift, the employee will be removed from working in a noise-hazardous area or at a noise-hazardous operation, retested as soon as possible after a 14 hour period away from work place noise, but within 30 days. The purpose of the retest is to determine if the threshold shift is temporary.

d. If a retest indicates that a significant threshold shift exists when using the definitions stated in paragraphs 6b above, employees shall be sent to an audiologist for a clinical audiological evaluation at the Government's expense. If the threshold shift(s) are confirmed, the results obtained from the audiologist shall be substituted as the employee's new baseline.

e. Audiograms shall be preceded by a period of at least 14 hours away from hazardous work place noise, and employees shall be instructed to avoid loud noises during off-duty hours prior to taking an audiogram.

f. ER 385-1-89 provides further information and requirements regarding audiometric testing and the evaluation of audiograms.

7. CAUTION SIGNS FOR NOISE HAZARDOUS AREAS.

a. Signs shall be posted at entrances to or on the periphery of all well-defined work areas in which employees could be exposed to hazardous noise.

b. Warning signs shall clearly indicate that the area is a high noise area and shall indicate that hearing protectors are required.

c. Each tool or piece of equipment which produces A-weighted sound pressure levels of 85 dB or greater shall be marked conspicuously to alert personnel, except in those instances where an entire space is designated as a noise-hazardous area.

8. TRAINING. Each employee included in the hearing conservation program shall receive training in accordance with ER 385-1-89. Consultation and assistance in training will be made available through the District Safety and Occupational Health Offices and/or Training and Development.

ANNEX E
PESTICIDE PROTECTION PROGRAM

1. PURPOSE. This annex establishes procedures for the safe storage, transportation and handling of pesticides.
2. GENERAL. ER 1130-2-540 specifies Corps of Engineers requirements concerning the use of chemicals on civil works projects and governs the implementation of the Pest Control Program.
3. MEDICAL EXAMINATIONS. All personnel required to handle or apply pesticides or to directly supervise their application will have pre-employment, periodic (annual) and pre-separation medical examinations. The medical examinations will include as a minimum:
 - a. Occupational history.
 - b. Hands-on examination by the physician.
 - c. Pulmonary function test, which includes FEV₁ and FVC.
 - d. Blood chemistry screen (26-panel) which includes the necessary liver function tests and renal function tests.
 - e. Urinalysis which includes tests for specific gravity, albumin, glucose, and ketones.
 - f. Chest roentgenogram (14" x 17" posterior-anterior chest film). After the baseline examination, this is authorized at the discretion of the physician, if needed to monitor exposure to job-related conditions.
 - g. Employees who handle, apply, or directly supervise the application of cholinesterase inhibiting insecticides shall also be given a serum cholinesterase test during their periodic examination.
4. PROTECTIVE CLOTHING AND EQUIPMENT.
 - a. Protective Clothing –Personnel shall be furnished and required to wear appropriate protective clothing, such as impervious clothing, boots, gloves, rain suits, and face shields when handling or applying pesticides.

b. Protective Equipment –Personnel handling or applying pesticides shall be furnished and required to wear appropriate respiratory protective equipment when specified by the pesticide label and/or material safety data sheet.

5. PREVENTIVE SAFETY MEASURES. Special emphasis shall be given to the safety measures listed in ER 1130-2-540.

6. TRAINING. All personnel directly involved in pesticide control shall be properly trained in accordance with ER 1130-2-540. Consultation and assistance in training will be available through the District Safety and Occupational Health Office, the District Chief of Operations Division, and/or Training and Development Branch.

7. EMERGENCIES. If a pesticide poisoning occurs, do the following:

a. Call the nearest poison control center or nearest physician. Below is a list of regional poison control centers that are certified by the American Association of Poison Control Centers as of the date of this regulation:

(1) Colorado:

Rocky Mountain Poison and Drug Center
Denver, CO

Emergency Numbers: (303) 629-1123
(800) 332-3073 (CO only)

(2) Michigan:

Blodgett Regional Poison Center
Grand Rapids, MI

Emergency Numbers: (800) 632-2727 (MI only)

Poison Control Center
Detroit, MI

Emergency Numbers: (313) 745-5711
(800) 462-6642 (MI only)

(3) Minnesota:

Hennepin Regional Poison Center
Minneapolis, MN

Emergency Numbers: (612) 347-3144
(612) 347-3141 (Telecommunications
Device for the Deaf)

Minnesota Regional Poison Center

St. Paul, MN

Emergency Number: (800) 222-1222 (MN)

(4) Missouri:

Cardinal Glennon Children's Hospital Regional Poison Center
St. Louis, MO

Emergency Numbers: (314) 772-5200
(800) 366-8888 (MO)

(5) Montana:

Rocky Mountain Poison and Drug Center
Denver, CO

Emergency Number: (800) 525-5042 (MT only)

(6) Nebraska & Wyoming:

The Poison Center
Omaha, NE

Emergency Numbers: (402) 390-5400/5555
(800) 955-9119 (Surrounding States)

(7) Oregon:

Portland, OR

Emergency Numbers: (800) 452-7165 (OR)
(503) 494-8968

- (8) Washington:
Seattle, WA
Emergency Numbers: (800) 732-6985 (WA)
(206) 526-2121

b. Chemical emergency information for police officers, firefighters and medical personnel, can be obtained immediately from the following organization:

Chemical Transportation Emergency Center, CHEMTREC, at (800) 424-9300.

ANNEX F
RESPIRATORY PROTECTION PROGRAM

1. PURPOSE. This annex establishes the Respiratory Protection Program.
2. GENERAL. ER 385-1-90 specifies CE requirements concerning the implementation of the respiratory protection program. This program is to ensure that all practical safeguards and precautions are taken to prevent occupational disease or injury to personnel from respiratory exposure to hazardous atmospheres.
3. RESPIRATOR SELECTION.
 - a. Respirators shall be selected according to the hazards to which a worker is exposed and shall be approved for those hazards by the Mine Safety and Health Administration (MSHA) and the National Institute for Occupational Safety and Health (NIOSH). Assistance in determining respirator need and in selecting the proper respirator will be available from the District Safety and Occupational Health Offices.
 - b. Respirators will be assigned to individual workers for their own use. A fit test is required for each employee. Employees assigned respirators will ensure respirators are kept clean and serviceable.
4. RESPIRATORY PROTECTION SOP. District SOH Offices shall ensure that a written SOP or regulation is developed which establishes procedures and assigns responsibilities for all aspects of the respiratory protection program applicable to each field activity.
5. MEDICAL EXAMINATIONS. Persons shall not be assigned to tasks requiring the use of respirators unless it is determined that they are physically able to perform the work and use the equipment. The periodic medical examination will include a hands-on examination by the physician, a pulmonary function test (PFT), and specific medical tests for suspected contaminant exposures.
6. APPROVAL OF RESPIRATORY PROTECTIVE DEVICES. Approvals for respiratory protective devices are jointly issued by MSHA/NIOSH.
7. TRAINING. Each employee who may be required to wear a respirator of any type shall receive instruction and training in the proper use and limitations of respiratory protective equipment. Each employee shall be instructed on the proper maintenance of respirators and methods to ensure adequate fit and function of the respirator. Consultation and assistance in training will be made available through the District SOH Offices and/or Training and Development.

ANNEX G OCCUPATIONAL VISION PROGRAM

1. PURPOSE. This annex establishes the Occupational Vision Program.
2. PROTECTIVE EYE WEAR. Wherever and whenever an operation or activity has been classified as eye-hazardous, protective devices shall be mandatory. Mechanics with hammers and chisels, operators of power tools and even office employees whose work brings them into hazardous areas should be protected against flying particles by safety glasses incorporating impact-resistant lenses of plastic or hardened glass. Particular jobs such as jackhammer and some grinding operations require safety glasses with side shields, goggles and/or face shields. The use of absorptive lenses may be required for specific operations where excess light is not readily controllable.
3. USE OF CONTACT LENSES. The use of contact lenses is prohibited whenever there are chemical eye hazards, under a respiratory protective mask, and where the atmosphere contains particles which could work under the lens and cause serious injury to the cornea.
4. VISION REQUIREMENTS FOR MOTOR VEHICLE AND INCIDENTAL OPERATORS AND OPERATORS HOISTING EQUIPMENT.
 - a. Office of Personnel Management (OPM) recognizes the following standard visual requirement for both motor vehicle operators and incidental operators: For unlimited operation of a motor vehicle, vision must be at least 20/40 (Snellen) in one eye and 20/70 (Snellen) in the other, with or without glasses or corrective lenses. A person who may be blind in one eye but whose vision tests at least 20/30 (Snellen) in the other, with or without corrective lenses, is acceptable for limited operation. OPM does not require the ability to distinguish basic or shades of colors. The vision screening test shall be given once every 3 years.
 - b. All operators of hoisting equipment used for hoisting personnel shall, as a minimum, have vision of at least 20/30 (Snellen) in one eye and 20/50 (Snellen) in the other, with or without corrective lenses. Hoisting equipment operators must have the ability to distinguish colors if required for safe operation. The vision screening test shall be given annually. Reference: EM 385-1-1, Section 5, Personal Protective and Safety Equipment.

APPENDIX D
PERSONAL PROTECTIVE EQUIPMENT (PPE)

1. PURPOSE. This appendix establishes the policy regarding PPE furnished by the Government to employees.
2. APPLICABILITY. This appendix applies to all employees in the Northwestern Division Office and the districts of the Northwestern Division.
3. GENERAL.
 - a. PPE shall be provided in accordance with AR 385-10.
 - b. All acquisitions of PPE shall be in accordance with standard acquisition procedures. PPE will remain the property of the Government and must be returned to the issuing organization when no longer required.
 - c. Annex A lists examples of PPE that are normally provided when justified for the job. Division or district SOH offices can provide advice on whether the PPE are appropriate for the job and assist the supervisor or employee by recommending the appropriate PPE for the job.
 - d. To avoid personal liability, questionable items should be reviewed by the SOH Office prior to purchase and have its indication of the items being appropriate.

ANNEXES:

ANNEX A – Examples of PPE

ANNEX A
EXAMPLES OF PPE

1. Hard hats and liners.
2. Eye protection:
 - a. Safety glasses.
 - b. Goggles.
 - c. Full face shield.
3. Respiratory protection.
4. Hearing protection.
5. Foot protection:
 - a. Safety shoes and boots -worn when lifting and carrying heavy objects or working around moving equipment.
 - b. Insulated boots –worn in cold weather; can also be protective toe and waterproof.
 - c. Waterproof boots –worn in wet or damp areas; can also be protective toe and insulated.
 - d. Oil resistant boots and shoes –worn when working in shop and maintenance areas (always purchased with protective toe).
 - e. Hip boots and waders –worn during dewatering, water sampling, gathering fish, working in raw sewage, etc.
6. Rain gear –offers protection from weather and water when working outside and on special jobs like dewatering, stop log changing, checking switch gear, etc.
7. Parkas and insulated coveralls -worn for outdoor work in cold weather.

8. Gloves:

a. Leather or heavy duty canvas -worn for handling material, working with hand tools or hot material, picking up trash, pulling thistle, etc. Rubber or impervious (reusable) -worn when handling pesticides, solvents, paints, cleaning materials, acids, caustics, etc.

b. Plastic (disposable) –worn when using pesticides.

c. Electrical –worn when working on energized electrical circuits.

d. Welders –flame retardant with gauntlet cuff.

9. Coveralls (polypropylene, spunbonded olefin or other appropriate material) –worn as a disposable item for one-time use to avoid exposure to and spread of toxic materials.

10. Coveralls (cotton or other washable material) –worn as reusable items to avoid exposure to irritant, toxic or corrosive materials, or applications that would ruin normal work clothes.

11. Flotation coats and suits –provide flotation and hypothermia protection for employees working near or on the water.

11. Personal flotation devices (PFDs) –worn when working near or on the water in all kinds of weather.

12. Insect bite kits –issued to employees sensitive or allergic to insect bites and stings. Purchase requires a prescription.

13. Sweat bands –worn to prevent sweat from running into eyes and obstructing vision.

14. Chaps –worn to prevent chain saw cuts.

15. Fall Protection harness and lanyards –worn for fall protection.

16. Knee pads –worn to prevent bruising or scraping when working on knees.

17. High visibility vests –worn when exposed to vehicular traffic.

18. Ice cleats – worn to prevent falling on ice.

19. Insect repellent – used in areas infected with chiggers, mosquitoes and ticks.
20. Lab coats and aprons – worn when exposed to chemical hazards.
21. Pepper spray – provided to rangers for personal protection against animals.

APPENDIX E
SAFETY AND OCCUPATIONAL HEALTH
MANAGEMENT EVALUATIONS

1. Purpose. This appendix establishes policy and programs for surveying, analyzing, and evaluating districts for management effort and effectiveness in the Safety and Occupational Health Program.
2. Applicability. This appendix applies to the evaluations of the districts in the Northwestern Division.
3. General Policy. It is the policy of the Division Commander that the Safety and Occupational Health Program of each district be evaluated as to its applicability and effectiveness.
4. Program Evaluation. CENWD-SO will provide a rating system at least 30 days in advance of the evaluation. Annex A provides a sample rating system for a district. Annex B provides a sample of evaluation elements for an Area/Resident Office. Annex C provides a sample of evaluation elements for a Construction Project. Annex D provides a sample of evaluation elements for an Operating Project.

ANNEXES:

- ANNEX A - Criteria for Safety and Occupational Health Program Management
Evaluation of District
- ANNEX B - Safety and Occupational Health Management Evaluation
Area/Resident Office
- ANNEX C - Safety and Occupational Health Management Evaluation
Construction Project
- ANNEX D - Safety and Occupational Health Management Evaluation
Operating Project

ANNEX A
CRITERIA FOR SAFETY AND OCCUPATIONAL HEALTH
PROGRAM MANAGEMENT EVALUATION OF DISTRICT

1. POLICY STATEMENT. The district must have a written S&OH Policy Statement signed by the current Commander. Policy Statement must be reviewed at the time of the evaluation.

a. Does Policy Statement establish the Commander as responsible for assuring that a positive and aggressive S&OH Program exists?

Yes _____ No _____

b. Does Policy Statement include all the principles established in AR 385-10, Chapter 1-5, "Policy"? This can be accomplished by distributing to all staff elements a copy of the NWD S&OH Policy Statement which has all these principles.

Yes _____ No _____

2. PROGRAM DOCUMENT. The district must have a current written S&OH Program management document. Document must be present at time of evaluation and cover the following:

a. Does document cover the areas of program management, government personnel safety and occupational health, contractor personnel occupational safety and health, public safety, accident investigation and reporting, exposure reporting, safety training, safety promotion and awards, S&OH management evaluations (internal and subordinate), annual site visits, hazard identification and abatement, design S&OH (facility system S&OH), and encompasses all missions, elements, and program areas of responsibility?

Yes _____ No _____

b. Is document updated at least every three years?

Yes _____ No _____

3. GOVERNMENT PERSONNEL SAFETY AND OCCUPATIONAL HEALTH. The district must have specific S&OH programs developed and implemented to maintain safe and healthful work environments, procedures, personnel, equipment and protect against accidental loss. Documentation must be reviewed at time of evaluation and cover the following:

a. Is a work place inspection and hazard abatement program in place and properly executed?

Yes _____ No _____

b. Is a Hazard Communication Program, to include personnel training program, program document, hazardous chemicals inventory, material safety data sheets and labeling system, in place and properly executed?

Yes _____ No _____

c. Is a Medical Surveillance Program, to include job hazard analyses, preemployment and annual job-related medical exams, in place and properly executed?

Yes _____ No _____

d. Have job and activity hazard analyses been performed?

Yes _____ No _____

e. Is appropriate S&OH training performed?

Yes _____ No _____

f. Is Radiation Protection Program being implemented, to include inventories, surveys, leak tests and authorizations/licenses renewed?

Yes _____ No _____ N/A _____

g. Is Radiological Defense Program in place and ready to implement?

Yes _____ No _____ N/A _____

h. Is Hearing Conservation Program being implemented, to include training, hearing protection, audiograms and warning signs?

Yes _____ No _____

i. Is Vision Protection Program being implemented, to include training, eye protection and warning signs?

Yes _____ No _____

j. Is Respiratory Protection Program being implemented, to include training, medical surveillance, fit testing and respirators available?

Yes _____ No _____

k. Is S&OH Promotion and Awards Program being implemented?

Yes _____ No _____

l. Is Diving Safety Program being implemented, to include written guidance regarding requirements?

Yes _____ No _____

m. Are methods available for employees to report unsafe/unhealthful working conditions, to include open lines of communications to the S&OH Office?

Yes _____ No _____

n. Is(Are) a S&OH/Wellness Committee(s) officially established on orders and active? Orders and minutes must be reviewed at time of evaluation.

Yes _____ No _____

4. CONTRACTOR PERSONNEL OCCUPATIONAL SAFETY AND HEALTH. Through contractual provisions and administrative programs, the district requires and ensures that contractors provide for the occupational safety and health of their employees. A sample of the contract files was reviewed at random. District requires and has documented evidence of the following minimum requirements.

a. Is accident prevention addressed in preperformance conference?

Yes _____ No _____

b. Are Accident Prevention Plan review and acceptance procedures in place and followed?

Yes _____ No _____

c. Are procedures for attendance at preconstruction S&OH meetings in place and followed?

Yes _____ No _____

d. Are activity hazard analysis review and acceptance procedures in place and followed?

Yes _____ No _____

e. Are contractor compliance inspections, detailing frequency, documentation and follow-up requirements, in place and followed?

Yes _____ No _____

f. Are procedures in place and used to gain contractor compliance with occupational safety and health provisions?

Yes _____ No _____

g. Are procedures in place to monitor the accomplishment of contractor personnel occupational safety and health training requirements?

Yes _____ No _____

h. Are accident-reporting procedures in place and followed?

Yes _____ No _____

i. Are equipment inspection and testing programs in place and followed?

Yes _____ No _____

j. Is Awards Program in place and followed?

Yes _____ No _____

k. Is a procedure for obtaining a waiver to Corps requirements in place and followed?

Yes _____ No _____

5. PUBLIC SAFETY AND HEALTH. The district administers and operates safe and healthful facilities. Programs were reviewed for effectiveness during evaluation. The district checks the following at the time of the evaluation:

a. Are facilities that are available to the public inspected for safety and health?

Yes _____ No _____

b. Are public safety promotion programs active?

Yes _____ No _____

c. Is the S&OH Office involved in the facility design review process?

Yes _____ No _____

6. SAFETY INFORMATION MANAGEMENT SYSTEM. The district collects, analyzes and measures S&OH data to develop local policy and program emphasis. The system used was reviewed during the evaluation.

a. Are district requirements for accident and occupational illness investigation and reporting, and exposure reporting consistent with USACE Supplement 1 to AR 385-40?

Yes _____ No _____

b. Does district S&OH Office perform periodic accident and occupational illness trend analyses to determine effectiveness of S&OH Program and areas requiring special emphasis? District S&OH Office needs to take appropriate corrective action regarding unfavorable trends.

Yes _____ No _____

7. GOALS AND MILESTONES. Has the district established written goals and milestones that are pertinent to the organization's mission and consistent with those of higher headquarters?

Yes _____ No _____

8. DESIGN S&OH (FACILITY SYSTEM S&OH). The district has a Design/Facilities System S&OH Program whereby high-risk facilities were analyzed for hazard assessment code and controlled through the application of system safety procedures.

a. Does the District S&OH Program document cover requirements for design S&OH reviews?

Yes _____ No _____

b. Is the S&OH Office involved in design reviews?

Yes _____ No _____

c. Have the district design, construction and S&OH Office personnel received the appropriate facility systems S&OH or design S&OH training?

Yes _____ No _____

9. PERFORMANCE STANDARDS AND EVALUATION SYSTEM. A sample of performance standards and evaluations for staff level supervisors/managers will be reviewed during the evaluation of the district.

a. Do all staff level supervisors/managers have measurable safety and occupational health performance standards incorporated into their performance standards?

Yes _____ No _____

b. Are S&OH Office evaluations considered in the annual performance evaluations of supervisors' performance that have significant S&OH requirements in their jobs and/or the missions of their organizations?

Yes _____ No _____

10. PROFESSIONAL DEVELOPMENT OF S&OH OFFICE STAFF. Have the needs for professional development been identified by having Individual Development Plans prepared for the S&OH Office staff?

Yes _____ No _____

ANNEX B
SAFETY AND OCCUPATIONAL HEALTH
MANAGEMENT EVALUATION
AREA/RESIDENT OFFICE

Area Office:

Area Engineer:

SOH Policy Statements Posted on Bulletin Board:

HQUSACE:

Division:

District:

Area Office:

OSHA Poster on Bulletin Board:

SOH Program Document(s):

Resident Office:

Resident Engineer:

SOH Policy Statements Posted on Bulletin Board:

HQUSACE:

Division:

District:

Area Office:

Resident Office:

OSHA Poster on Bulletin Board:

SOH Program Document(s):

Evaluator:

Date:

ANNEX C
SAFETY AND OCCUPATIONAL HEALTH
MANAGEMENT EVALUATION
CONSTRUCTION PROJECT

Project Name:

Contract Number:

Contractor:

Location: Area Office:

Resident Office:

Personnel Met: Project Engineer:

Construction Rep/Inspec:

Accident Prevention Plan:

Activity Hazard Analyses:

Quality Control Reports:

Quality Assurance Reports:

Supervisors' Safety Meeting Reports:

Toolbox Safety Meeting Reports:

Inspection Checklists:

Material Safety Data Sheets:

Construction Site Survey Findings:

Other Comments/Findings:

Evaluator:

Date:

ANNEX D
SAFETY AND OCCUPATIONAL HEALTH
MANAGEMENT EVALUATION
OPERATING PROJECT

Project Name:

Personnel Met: Project Manager:

Project Safety Officer:

Park Manager:

Safety & Occupational Health (SOH) Program Document:

SOH Policy Statements:

SOH Meetings:

Pesticide Storage:

Fire Extinguishers Inspected:

OSHA Hazard Communication Standard:

Program Document:

Training:

Hazardous Materials Inventory:

Material Safety Data Sheets:

Labeling System:

Hazard Analyses of Operations:

Medical Surveillance Program:

Public Safety in Visitor Center:

Public Use Areas:

Other Comments/Findings:

Evaluator:

Date:

APPENDIX F
DIVISION COMMANDER'S
SAFETY AND OCCUPATIONAL HEALTH AWARD PROGRAM

1. PURPOSE. This appendix establishes the Division Commander's Safety and Occupational Health Award Program which recognizes exemplary achievement in district safety and occupational health programs.
2. APPLICABILITY. This appendix applies to the districts of the Northwestern Division.
3. AWARD.
 - a. Each fiscal year, the districts will be considered for the Division Commander's Safety and Occupational Health Award. Award(s) will be presented to the district(s) with exemplary achievement in its/their safety and occupational health program(s). Criteria will include the following:
 - (1) Command Management Review statistics.
 - (2) HQUSACE Command inspection findings.
 - (3) NWD Safety and occupational health program management evaluations.
 - (4) District nominations of accomplishments to consider. Each nomination shall not exceed ten pages, including enclosures.
 - b. Award will be a Division Commander's plaque.
 - c. Publicity will be provided by CENWD-PA regarding the award(s).

APPENDIX G
SAFETY AND OCCUPATIONAL HEALTH AWARD PROGRAM
FOR
CONSTRUCTION CONTRACTORS

1. PURPOSE. This appendix establishes a program for solicitation of District nominations of construction contractors to be recognized by the Chief of Engineers for significant safety and/or occupational health accomplishment(s). These nominations will be forwarded through the Northwestern Division SOH (CENWD-SO) to HQUSACE (CESO).
2. APPLICABILITY. This appendix applies to the Districts of the Northwestern Division.
3. NOMINATIONS.
 - a. Each fiscal year, CENWD-SO will solicit nominations from the District SOH offices. After review, CENWD-SO will submit the best nomination to CESO. At the district and division levels, the nomination will be coordinated with the construction organization.
 - b. Each district will submit a nominations or report to CENWD-SO that no contractor met the criteria.
4. CRITERIA. District nominations will contain the information that is specified in the most recent guidance document from CESO.

APPENDIX H
QUALIFICATIONS AND SKILLS
OF
MOTOR VEHICLE AND EQUIPMENT OPERATORS

1. PURPOSE. This appendix prescribes policy, responsibilities, and procedures for training, testing, and licensing of operators of motor vehicles and construction equipment which is owned, leased, or operated by the Northwestern Division.
2. APPLICABILITY. This appendix is applicable to the Northwestern Division Office and the districts of the Northwestern Division.
3. OPTIONAL FORM 346 (OF 346), U.S. GOVERNMENT MOTOR VEHICLE OPERATOR'S IDENTIFICATION CARD.
 - a. Applications for an OF 346 will be in accordance AR 600-55.
 - b. An OF 346 is valid for four years unless revoked for cause.
4. RESPONSIBILITIES.
 - a. District Operations Division will arrange or provide for training, testing, licensing, and maintenance of records within its district.
 - b. District SOH Office will assist Operations in the coordination of the licensing program within its district.
 - c. Supervisors will determine the need for subordinate employees to obtain an OF 346 and initiate the required action in accordance with this regulation. Supervisors may revoke an operator's OF 346 based on the recommendation of safety or medical personnel.
 - d. Operators will:
 - (1) Operate vehicles or equipment in a safe and prudent manner.
 - (2) Report unsafe operating conditions of vehicles or equipment.
 - (3) Report all accidents to his or her supervisor. The supervisor will, in turn, report the accidents to the appropriate Safety and Occupational Health Office.

- (4) Comply with all municipal, state, and military motor vehicle or equipment regulations.
- (5) Ensure that vehicles or equipment and their contents are properly secured when left unattended.
- (6) Ensure that the vehicle or equipment is properly serviced during the course of operation.
- (7) Observe and comply with all posted speed limits on and off post.
- (8) Ensure that all vehicle occupants use the installed restraint systems when the vehicle is in motion.

e. Motor Vehicles.

(1) Motor Vehicles Under 10,000 Pounds. All personnel that are required to operate a Government-owned or leased motor vehicle under 10,000 pounds gross vehicle weight (G.V.W.) will be required to have in their possession a valid state motor vehicle operator's license.

(2) Motor Vehicle 10,000 Pounds and Over. All personnel that are required to operate a Government-owned or leased motor vehicle of 10,000 pounds and over G.V.W. will be required to have in their possession a valid state motor vehicle operator's license and an OF 346 issued in accordance with AR 600-55.

f. Construction Equipment.

(1) Officials authorized to certify equipment operators will ensure that all operators of construction equipment have demonstrated their ability to safely operate the equipment prior to certification. The certification should include a statement by the supervisor that the employee has a working knowledge of the capacities, limitations, and safety features of the equipment.

(2) DA Form 348, Equipment Operator's Qualification Record, will be maintained as a permanent record of each individual's qualifications and performance.

g. Floating Plant. Each District will establish a licensing program in accordance with ER 1130-2-500, Partners and Support (Work Management Policies).

h. Physical Qualifications. Operators shall meet the applicable Office of Personnel Management physical qualifications and any special occupational health requirements.

APPENDIX I

DIVING OPERATIONS

1. PURPOSE. This regulation defines policies and responsibilities for underwater diving operations performed by contract personnel for the U.S. Army Corps of Engineers, Northwestern Division.
2. APPLICABILITY. This regulation is applicable to all activities under the control of the Northwestern Division.
3. POLICY. It is the policy of the Northwestern Division that all contract diving operations be conducted in a prudent manner which will provide for maximum efficiency of operation and minimum potential hazard to personnel, property and equipment. Diving operations should be conducted only when the task to be performed cannot effectively be accomplished by alternatives to manned diving; i.e., the use of underwater cameras.
4. GENERAL.
 - a. Diving operations in the Northwestern Division will be conducted in accordance with the provisions of this regulation and the applicable referenced documents. Contracts issued for work or services within the Division will reference this regulation whenever diving services may be required as part of the contracted work. Where conflicting requirements exist, the more conservative measure will be used.
 - b. Diving is an inherently hazardous activity. Each dive will be carefully planned and executed according to the dive plan. Each dive will be properly supported with adequate contractor and Corps of Engineers personnel. Requirements of interfacing schedules and budget, while a consideration in planning a dive, is not justification to waive dive safety measures. Requirements of these regulations may be waived only in immediate life threatening situations or by the specific authority of the Commander.
 - c. Self contained underwater breathing apparatus (SCUBA) equipment will be employed only in instances where such equipment is significantly more effective than surface supplied systems without increased liability to diver's safety. SCUBA diving operations shall not be conducted without the specific, prior approval of the District Diving Coordinator and/or the SOH Office.
 - d. Mixed-Gas Diving Operations will be performed in accordance with EM 385-1- 1, OSHA requirements as detailed in 29 CFR 1910.426, Subpart T and the U.S. Navy Diving Manual, Volume 2.

e. In no instance will free diving (breath hold) techniques be employed.

f. Commercial diving companies must be screened prior to commencing any diving operations for the CE. In order to perform work for the Northwestern Division and its districts, the diving company must have an excellent track record that demonstrates knowledge and expertise in the type of diving operations to be performed and perform such work on a regular basis, according to the standards established by this regulation and the District Diving Coordinator or SOH Office.

g. Verification of dive team qualifications, experience, and medical records to include divers, dive supervisors, and tenders, will be provided to the District Diving Coordinator for review and approval prior to commencement of operations. A lack of experience or qualifications to perform the tasks at hand will be cause for rejection or cessation of operations. Divers, dive supervisors, tenders and chamber operators- timekeepers will be qualified according to the standards established by this regulation, the District Diving Coordinator or the SOH Office.

h. Each District Diving Coordinator may elect to implement and enforce more conservative diving requirements, but under no circumstances will the operational requirements be less than specified in this regulation without the specific authorization of the Division SOH Office or the Commander.

5. RESPONSIBILITIES.

a. Corps of Engineers. The Corps of Engineers is responsible to determine the need for and scope of contract diving operations. The Corps is also responsible to define diving policy and the requirements to which contract divers will adhere. In addition, the Corps will provide sufficient administration and field support to ensure that diving operations are conducted safely and in accordance with applicable regulations. This task is accomplished by the personnel described below utilizing the activity sequence defined in Annex A.

(1) District Diving Coordinator (DDC). District Commanders will appoint a DDC who is responsible to the Commander for the proper management and administration of the Diving Safety Program within the District. The specific duties of the DDC are listed in Annex B.

(2) Diving Safety Officer (DSO). The District Commander will appoint a sufficient number of DSOs to ensure that a DSO is present at each contract dive conducted by the District. The DSO is the District's representative at the dive site. The DSO's responsibility is to ensure that the dive operation is adequately planned, equipped and staffed and that the dive is conducted according to the dive plan. Also, the DSO is responsible to ensure that dive conditions specified

in the dive plan have been established by the Corps of Engineers and the contractor. The DSO has the authority to delay or stop a dive at any time. The DSO's sole responsibility is the safe conduct of the diving operation and he will not assume other duties concurrent to the diving operation. The specific duties of DSOs are listed in Annex B.

(3) Others. In addition to the personnel described above, Resident Engineers, Project Managers, Chiefs of Operations and Chiefs of Maintenance at each project are charged with ensuring the efficiency and safety of diving operations within their areas of responsibility. These individuals may, at their discretion, employ additional levels of supervision on diving operations as long as the chain of responsibility remains clearly defined. In addition, they have the authority to stop a dive but may not override a decision by the DSO to stop a dive for safety reasons.

b. Contractor. The contractor has primary responsibility to accomplish the objective of the dive efficiently and safely as well as to adhere to all applicable regulations.

(1) Contractor Safe Practices Manual. Each contractor will develop and maintain a safe practices manual. This manual will encompass the contractors entire diving program and be available at all times at the dive location to each dive team member and the DSO. This manual will be submitted to the DDC for review and approval annually or upon any significant changes in company procedures, organizational structure, or staffing.

(2) Dive Plan. The contractor will prepare and submit for approval to the Corps of Engineers, a dive plan and emergency management plan which conforms to the requirements of Annex C. These documents will be available for review at the pre-dive conference.

(3) Activity Hazards Analysis. The contractor will prepare and submit for approval to the Corps of Engineers, an activity hazards analysis for each operation, which conforms to the requirements of Annex C. This document will be available for review at the pre-dive conference.

(4) Diving Activity Coordination. The contractor shall participate in the following meetings for each dive as described in Annex A.

(a) Joint Review (When deemed necessary by the Corps DSO).

(b) Pre-dive Conference.

(c) Post-dive debriefing.

(5) Diving Personnel. The contractor will provide sufficient qualified personnel for each dive as defined in the Dive Operation Specifications and EM 385-1-1.

(6) Diving Equipment. Equipment furnished by the contractor will comply with the requirements of EM 385-1-1, Section 30.E.

(a) Approved dual-lock recompression chambers are required to support diving operations whenever expected depths exceed 30 feet (on decompression tables), or when diver is making a significant penetration.

(b) Bailout cylinders shall be a minimum of 30 cubic feet and shall be firmly attached to a harness. Larger bottles may be required depending on length of penetration or other circumstances.

(7) Diving Operations. Contractor Diving operations will conform to EM 385-1-1, Section 30.B for SCUBA and Section 30.C for Surface Supplied Air.

(8) Insurance Requirements. The contractor will, at its own expense, provide and maintain during the entire performance of the contract, a minimum of the following kinds and amounts of insurance:

(a) Workmen's Compensation and Employer's Liability Insurance including Federal Longshoreman and Harbor Workers' and/or Jones Act Insurance, if they apply, in the amounts specified by the applicable Federal and/or State authorities.

(b) Comprehensive, bodily injury, and property damage liability; minimum limits of \$1,000,000 for injury to or death of any person, and \$1,000,000 for each accident or occurrence for bodily injury liability; and \$300,000 for each accident or occurrence for property damage liability.

(c) Automobile bodily injury and property damage liabilities; minimum limits of \$1,000,000 for injury or death of any one person and \$1,000,000 for each accident or occurrence for bodily injury liability; and \$300,000 for each accident or occurrence for property damage liability.

(d) Single General Aggregate Limits or Combined Single Unit Coverage. If single general aggregate limits or combined single unit coverage is obtained for general liability and/or automobile liability coverage, minimum amounts will be the sum of the personal injury and property damage coverage required above. Umbrella Form Excess Liability insurance coverage will be added to general liability and automobile liability coverage to determine if minimum insurance limits are met.

ANNEX A
CONDUCT OF A DIVING OPERATION

1. INTRODUCTION. The following is a brief description of the events which constitute the planning and execution of a typical dive. It may be modified, with the concurrence of the DDC, to suit the particular requirements of a specific dive. Each aspect of the sequence should be considered.
2. DIVE PLANNING AND EXECUTION SEQUENCE.
 - a. A condition is identified by project personnel for which a dive may be required.
 - b. The Project Manager or Resident Engineer in conjunction with the DDC, using the guidelines of this regulation, determines the need for a dive.
 - c. The DDC assigns a DSO to work on the dive.
 - d. A joint review is held with the members of the project staff and the DSO. The purpose of the joint review is to agree that all technical and safety considerations have been addressed to the satisfaction of all involved.
 - e. Once the dive is defined, a specification is written by the DSO specifying the dive objective, as well as equipment and personnel requirements. The service of a commercial diving organization is obtained through the appropriate contract solicitation process.
 - f. Appropriate project personnel determine the configuration of operating equipment and any clearances that will be required. They are reviewed and submitted to the contractor for inclusion in the preparation of the dive plan.
 - g. The contractor then prepares a dive plan package consisting of a dive plan, an emergency management plan and an activity hazard analysis and submits them to the District safety office and the DDC for review and approval.
 - h. Concurrently the contractor submits certification of his personnel and equipment, including compressed air quality certification to the DSO.
 - i. Immediately before diving operations commence, a pre-dive conference is conducted by the DSO and the contractor's dive supervisor. All individuals who will be involved in the diving operation will attend the pre-dive conference. The pre-dive conference will cover, as a minimum:

- (1) Objective and scope of dive operation.
 - (2) Conditions in the operating area.
 - (3) Techniques and equipment to be used.
 - (4) Government personnel assignments and dive team assignments.
 - (5) Anticipated hazards.
 - (6) Reinforce normal safety precautions.
 - (7) Discussion of special considerations.
 - (8) Detailed review of dive plan, emergency management plan and the activity hazards analysis.
 - (9) Group discussion and questions.
 - (10) Final acceptance of dive plan and associated documents by DSO and dive supervisor.
- j. A physical inspection is made of all operational equipment to ensure that all required clearances have been accomplished. The clearances are checked by the DSO and dive supervisor in conjunction with other project or plant personnel, if necessary.
- k. The divers and tenders perform a final dive and support equipment check, to include decompression chamber if applicable.
- l. The dive operation is performed.
- m. Upon completion of each dive, a post-dive debriefing is conducted by the Corps DSO and the contractor's dive supervisor. Changes to future parts of the operations will be coordinated with the Corps DSO. Divers are advised of the location of nearest decompression chambers and cautioned on the limitations of their post-dive activities (e.g. repetitive dives and flying).

ANNEX B
DESCRIPTION OF DUTIES

1. DISTRICT DIVING COORDINATOR (DDC).

- a. Manages District Diving Safety Program, serves as the center of expertise for all underwater activities that involve diving or diving alternatives.
- b. Coordinates diving related training program.
- c. Maintains District diving regulations.
- d. Reviews and approves the necessity for all dives within the District.
- e. Maintains records and other documentation for contract diving organizations and diving personnel who are registered to perform diving operations for the District.
- f. Establishes minimum requirements for contract diving organizations and establishes minimum qualifications for contract diving personnel performing diving operations for the District.
- g. Reviews and approves dive contractors Safe Practices Manuals.
- h. Performs field inspections and audits to ensure compliance with District and Corps regulations and requirements.
- i. Resolves conflicts in field interpretation of regulations and requirements.
- j. Develops and maintains standardized document formats for contractor submittals.
- k. Reviews and accepts:
 - (1) Dive Plans
 - (2) Emergency Management Plans
 - (3) Activity Hazards Analysis

1. Qualifications:

(1) Successful completion of a HQUSACE approved Diving Supervisor Training Course or Diving Safety Course.

(2) Must have specialized hyperbaric chamber training and mixed-gas training.

(3) Minimum of two years of experience on a wide variety of Corps diving operations.

(4) Conducts minimum of 3 diving operations annually to maintain diving proficiency.

(5) Diver qualifications preferable.

2. DIVING SAFETY OFFICER (DSO).

a. Serves as District's representative at the dive site to ensure the safety of the diving operation. Shall not assume other duties concurrent to the diving operation.

b. Acts as principle technical interface between the District and the contractor for any particular diving operation.

c. Defines dive objectives with the project personnel.

d. Assists in determination of the need for a dive and the diving techniques to be used.

e. Conducts joint review with project and contractor personnel.

f. Assists project personnel to establish Safe Clearance configuration. Must review and accept safe clearances prior to commencement of diving operations.

g. Attends and assists the contractor's dive supervisor in the conduct of the pre-dive conferences.

h. Stops dive if a safety violation or unsafe condition occurs or operational conditions change which affect the safe conduct of a dive.

i. Conducts post-dive debriefing.

j. Ensures proper reporting of accidents and/or decompression sickness.

k. Ensures dive is conducted in accordance with the dive plan and all applicable requirements and regulations.

l. Ensures all dive-related documents are provided to the DDC.

m. Qualifications:

(1) Successful completion of a HQUSACE approved Diving Supervisor or Diving Safety Course.

(2) Observes at least 3 diving operations conducted by a senior DSO after initial Corps diving training.

(3) Conducts minimum of 3 diving operations annually to maintain diving proficiency.

(4) Diver qualifications preferable.

ANNEX C
DIVE PLAN PACKAGE

1. DIVE PLANS. A diving operation plan shall be developed by the contractor for each diving operation. Project specific information needed to write the dive plan will be obtained from the DSO. This plan must be approved by the DDC and SOH Office prior to commencement of operations, be at the diving location at all times and be available to the government representative upon request. The dive plan will be reviewed, in detail, at the pre- dive conference. All dive plans will become a part of the contract file. As a minimum, the plan will contain the following:

- a. Purpose of dive.
- b. Names of dive team members and their assignments clearly defined.
- c. Date, time, and location of dive.
- d. Diving mode utilized, i.e., surface-supplied air, mixed gas, SCUBA.
- e. Nature of work to be performed.
- f. Expected surface and underwater conditions, to include visibility, temperature, currents, equipment operating or shut down, etc.
- g. Maximum depth and bottom time to include planned or possible decompression times.
- h. Planned rotation of divers to maximize diver utilization and minimize barotrauma risk.
- i. Dive logs will be provided after the completion of the dive and shall note any operational problems encountered.

2. EMERGENCY MANAGEMENT PLAN. An Emergency Management Plan shall be prepared by the contractor for each dive and approved by the DDC and attached to the dive plan. The minimum content of the plan will be as follows:

- a. Emergency Information. The contractor will ensure the following emergency information is available at the dive site.

(1) Location and phone number of nearest operational decompression chamber if not located at dive site.

(2) Location and phone number(s) of nearest hospital(s).

(3) Location and phone number of nearest U.S. Coast Guard Rescue Coordination Center.

(4) Description of an emergency victim transport plan including phone numbers of appropriate ambulance services.

(5) Procedures and phone numbers or other lines of communications to activate emergency services at the facility where the work is being performed.

b. Procedure to deal with entrapped or fouled diver.

c. Actions upon loss of vital support equipment.

d. Actions upon loss of gas supply.

e. Action upon loss of communication.

f. Lost diver plan.

g. Injured diver plan.

h. Actions upon discovery of fire.

3 ACTIVITY HAZARD ANALYSIS. An activity hazards analysis represents the dive team's best effort to anticipate and mitigate or prevent the adverse effects of equipment failure, weather, or other unexpected situations. Each activity hazards analysis will be job specific.

4. SEVERAL SEPARATE ANALYSES. Some dives may be sufficiently complex to warrant several separate analyses. The activity hazards analysis will be covered in detail at the pre-dive conference. A copy of any clearances to be issued to deal with identified hazards will be attached to the activity hazards analysis. The activity hazard analysis shall be prepared in accordance with EM 385-1-1, paragraph 01.A.09.

ANNEX D NITROX GAS DIVING

1. PURPOSE. This policy defines responsibilities for underwater diving operations performed with the use of Nitrox (EANx) as a breathing mixture by contract diving personnel for the U.S. Army Corps of Engineers, Northwestern Division.
2. APPLICABILITY. This policy is applicable to all manned diving activities on Corps of Engineers property, or under the control of subordinate commands of Northwestern Division.
3. SCOPES. This policy is directed at controlling diving operations using Nitrox only. Other mixed-gas formulas, such as Tri-mix, Heliox, etc. are specifically not covered by this policy.
4. DEFINITION. Nitrox (EANx), for the purposes of this policy, is defined as any oxygen/nitrogen mixture that exceeds the ratio of 21%/79% found naturally occurring in air.
5. GENERAL.

a. The use of Nitrox gas for diving operations has become a routine and acceptable practice to improve safety of divers as well as improve the effectiveness of diving operations. While the benefits of using Nitrox can be significant, the use of any breathing gas in lieu of naturally occurring air brings with it hazards that must be addressed. Nitrox gas is most effective in shallow water with a maximum depth of 100 feet. It can significantly extend bottom time depending on the depth used.

b. The DDC may elect to implement and enforce more conservative diving requirements depending on conditions and situations. Under no circumstances will the operational requirements be less than specified in this policy without the specific authorization of the DDC.

6. REQUIREMENTS.

a. Equipment:

(1) An approved dual-lock recompression chamber must be on-site, be pressurized and fully operational.

(2) Bailout bottles worn as a personal emergency air supply shall be charged with the same Nitrox mixture as the primary breathing gas.

(3) Secondary or backup air supply must be equivalent to the primary gas mixture.

(4) All equipment supporting the use of Nitrox in mixtures greater than 40% shall require that all such equipment be "Oxygen Clean."

b. Training: All personnel, Corps and contractor, associated with any diving operation using any Nitrox breathing gas, shall be trained according to accepted diving industry standards through organizations such as IANTD, PADI, NAUI, NASDS, SSI, or the equivalent. This must be a minimum of 4 classroom hours and must cover all aspects of Nitrox diving operations. This training must be fully documented by presenting a certificate of completion, or a letter from a documented Nitrox instructor, certifying the successful completion of the required training. The specific training shall include the following topics:

- (1) Oxygen partial pressure limits.
- (2) Nitrogen-oxygen breathing mixtures.
- (3) Depth/time limits for oxygen during working dives.
- (4) Central nervous system (CNS) and pulmonary oxygen toxicity.
- (5) Analysis of mixed-gas breathing media.
- (6) Mixed-gas equipment (open circuit system).
- (7) Mixed gas equivalent air depths formula and tables.
- (8) Nitrox decompression tables.
- (9) Nitrox residual nitrogen table.
- (10) Nitrox surface interval table.

c. Tables:

(1) Equivalent Air Depth (EAD) Formula:
$$EAD = \frac{(FN_2)(D+33)}{0.79} - 33$$

FN_2 = Decimal equivalent of nitrogen in mixture

0.79 = Decimal equivalent of nitrogen in air

D = Depth in feet

(2) NOAA Nitrox diving tables.

(3) Others, so long as they are no less conservative than NOAA tables.

(4) Maximum partial pressure of oxygen shall not exceed 1.4 atmospheres.

d. Gas Supplies:

(1) On-site gas mixing systems that use any form of containerized pure oxygen and/or nitrogen for blending shall require all equipment and human resources necessary to conform to mixed-gas diving operations.

(2) All Nitrox gas containers shall be certified as to the O_2N_2 mixture by the vendor supplying the gas and be clearly marked by gas mixture percentage on each container.

(3) Each container of Nitrox being placed on-line in support of diving operations, must be tested with an approved oxygen analyzer by the diver or diving supervisor to confirm gas mixture prior to use.

(4) All Nitrox gases shall be within +/- 1% of the certified mixture.

(5) Nitrox mixtures that exceed 40% shall be specifically approved by the District Diving Coordinator prior to use.

APPENDIX J ERGONOMICS

1. GENERAL. Each regional and district office shall establish an ergonomics program in accordance with guidance set forth in draft DA PAM 40-ERG "Ergonomics Program" (<http://chppm-www.apgea.army.mil/ergopgm/ergohome.htm>) and other applicable directives. District plans shall cover subordinate offices and projects within the district.
2. GOALS. The goals of the ergonomics program are to prevent workplace injuries; reduce the potential for fatigue, error, and unsafe acts by adapting the job and workplace to the worker's capabilities and limitations; reduce medical and associated costs of work-related musculoskeletal disorders (WMSDs); reduce workers' compensation claims and associated costs; preserve the strength and well-being of our workforce; and increase overall productivity.
3. RESPONSIBILITIES.
 - a. Division/District Commanders shall:
 - (1) Establish an ergonomics subcommittee under the SOH advisory council and integrate ergonomics into all phases of the SOH program. Detailed information on the ergonomics subcommittee, including recommended membership, is in draft DA PAM 40-ERG "Ergonomics Program."
 - (2) Designate a Division/District Ergonomics Officer (DEO) and select members of the ergonomics subcommittee (a subcommittee of the SOH advisory council) based on recommendations from the DEO.
 - (3) Approve the Division/District ergonomics plan based on the recommendations of the SOH advisory council.
 - (4) Provide sufficient funds and other resources to carry out all responsibilities related to this program per AR 40-5, paragraph 1-4g(2), and AR 385-10, paragraph 2-1e.
 - (5) Work with the Division/District personnel, the unions, the public, and appropriate regulatory authorities to effectively address ergonomics issues.
 - (6) Require that appropriate reporting and recordkeeping procedures be followed per AR 40-5, paragraphs 3-3 through 3-9, and AR 385-40, paragraph 1-4e.

b. The Safety and Occupational Health Manager shall:

(1) Obtain and forward the following to the DEO: ENG Forms 3394 for ergonomic injuries or illnesses; DA Form 3076, Army Occupational Health Report (Requirement Control Symbol (RCS) MED 20(R4)); log of Federal Occupational Injuries and Illnesses or equivalent; Federal Employees' Compensation Act (FECA) claims; statistical data; work force reports (including civilian and active-duty personnel and pay reports of lost duty time as a result of injury or illness); and suggestions and other reports as applicable.

(2) Provide reports to the Division/District command group and advises the commander on issues related to SOH including ergonomics.

(3) Chairs the ergonomics subcommittee, providing an interface between the ergonomics subcommittee and the SOH advisory council.

(4) Develop and implement the Division/District ergonomics plan, with the assistance of the ergonomics subcommittee and approval of the SOH advisory council.

(5) Oversee, manage, or actually perform the worksite analysis, and ensures its completion.

(6) Ensure that an internal evaluation and review of program objectives is conducted and reports the results to the SOH advisory council, with the assistance of the ergonomics subcommittee. The evaluation and review should be conducted quarterly, or at least semiannually, using the guidance in draft DA PAM 40-ERG.

(7) Ensure accurate record keeping of ergonomics subcommittee reports.

c. The Ergonomics Subcommittee shall:

(1) Under the Division/District SOH advisory council, assist in developing and implementing the Division/District ergonomics plan.

(2) Oversee and participate in gathering and evaluating injury, lost work time, trend, productivity, and complaint data on worksites and work processes.

- (3) Identify existing and potential WMSDs.
 - (4) Conduct worksite evaluations.
 - (5) Set priorities for abatement of identified WMSDs.
 - (6) Implement corrective actions.
 - (7) Provide appropriate worker training.
 - (8) Develop methods to evaluate the effectiveness of the corrective actions and documents the results.
 - (9) Work with safety and occupational health personnel in the identification of potential WMSDs and advise on ergonomic changes related to the workstation, tasks, and tools.
 - (10) Provide reports to the Division/District SOH advisory council at least semiannually.
- d. Managers and supervisors shall:
- (1) Ensures personnel are trained and follow safe work practices.
 - (2) Recognize, correct and report hazardous work practices.
 - (3) Recognize and report early symptoms of potential WMSDs.
 - (4) Routinely review work areas, tasks, and tools for potential WMSD risk factors.
 - (5) Coordinate with trained ergonomics, safety, and health personnel to reduce risks and support the overall ergonomics program.
 - (6) Maintain effective schedules for facility, equipment, and tool maintenance, adjustments, and modifications.
 - (7) Hold personnel accountable for failure to follow safe work practices and recognize initiatives in improving operating conditions and procedures through incentive awards.
 - (8) Ensure personnel are aware of benefits and responsibilities provided by AR 690-800, chapter 810, subchapter 6.

- e. Military and civilian personnel shall:
 - (1) Modify work practices as recommended.
 - (2) Notify supervisors of WMSD risk factors in the workplace.
 - (3) Recognize and report symptoms of WMSDs early.
 - (4) Participate in the Medical Surveillance Program, if required.
 - (5) Perform recommended conditioning activities.
 - (6) Actively participate in the suggestion process.
 - (7) Routinely review work areas, tasks, and tools for potential WMSD risk factors.

4. THE DIVISION/DISTRICT ERGONOMICS PLAN.

- a. The Division/District ergonomics plan focuses on the identification and control of improper workplace and work process design to protect personnel from injury and illness due to exposure to occupational risk factors.
- b. The Division and District offices shall develop and implement an ergonomics plan in accordance with DA requirements. Provisions for the plan and its development are outlined in draft DA PAM 40-ERG.
- c. The Division/District ergonomics plan should reflect the needs and requirements of the individual organization. At a minimum, the ergonomics plan should contain these items: program goals and objectives; program interface with existing programs; and the specific "critical program elements" for ergonomic intervention.
- d. The critical program elements are worksite analysis, hazard prevention and control, health care management, education and training, and ergonomics program evaluation.
- e. The extent of involvement in each of the five critical program areas will vary according to the hazards and concerns at each Division/District; however, some degree of activity in each of the five critical program elements is required for an effective program. Detailed guidelines for development and management of each of these critical areas are provided in draft DA PAM 40-ERG.

5. EDUCATION AND TRAINING. Training is integral to the successful implementation of a Division/District ergonomics program. Detailed requirements for training and its conduct are outlined in draft DA PAM 40-ERG. A "train the trainer" program may be used to assure that all personnel requiring ergonomics training receive it.

a. Personnel requiring training:

- (1) All DA personnel who are potentially exposed to WMSDs.
- (2) Supervisors.
- (3) Managers.
- (4) Engineers and maintenance personnel.
- (5) Division/District SOH personnel.

b. Personnel who may conduct training:

- (1) Trained ergonomics personnel.
- (2) Suitable health care personnel to conduct specific portions of training, such as those related to health risks.

APPENDIX K
RADIATION PROTECTION

GENERAL.

- a. All changes to the inventory of radioactive material or ionizing radiation producing devices will be coordinated through the Northwestern Division Safety and Occupational Health Office.
- b. All revisions to radioactive material licenses or authorizations for ionizing radiation producing devices will be coordinated through the Northwestern Division Safety and Occupational Health Office.